









**Investor Meet**  
**03-March-2020 Mumbai**

**Industrial Presentation**








- 1. Overview of Exide's industrial verticals**
- 2. Way forward for Exide's business**
- 3. Future readiness of Exide**

## Widest Portfolio

-  IUPS
-  Solar
-  Power
-  Railways
-  Telecom
-  Traction (forklift truck)

## Affordable technologies

-  VRLA
-  Tubular–flooded/Gel
-  Plante
-  Advanced Lead Acid–ULTRA
-  Lithium (Ready)

## Export Ready

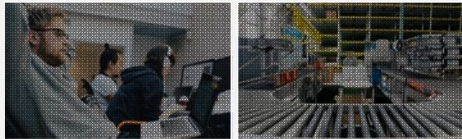
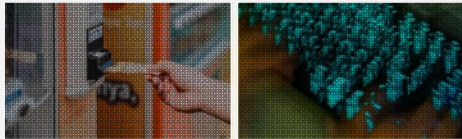
-  100% owned subsidiaries in Singapore & UK
-  Strong presence in Germany
-  Portfolio on par with International standards
-  Strong focus in both Traction and Standby applications



## Market landscape

- ✓ IUPS used as critical backup across multiple industries

### Bank & FI/ATM    Data Centers



Offices

Industry



## Product offering

- ✓ Wide product portfolio



1. Stable Market (7-8% YoY)
2. Widest range of products
3. Buoyant aftermarket
4. > 50% Market share



## Market landscape

- ✓ Market consists of solar power generation units (on and off-grid), and energy storage systems
- ✓ Slight market slowdown in 2019, but growth expected due to government policy on renewable energy
- ✓ Market is very fragmented



## Product offering

- ✓ Market offering: batteries, (Tubular & Gel), solar panels, inverters and Combo packs – key to winning in industry



1. Market rebound, visible after gloomy 2019
2. Microgrids/Rooftops footprint established
3. Combo packs as growth engine
4. Strong brand in retail channels
5. >60% of our revenue comes from trade channel



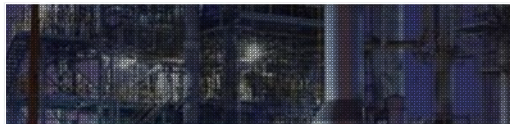
## Market landscape

- ✓ Market is driven by growth in infrastructure spend
- ✓ Market requires technical selling—major barrier to entry

### Power Plants



### Metro & rail



### Industry



## Product offering

- ✓ Exide offers Plante batteries unique to this market



1. Unique Portfolio
2. Technical selling as entry barrier
3. Ready for National Infrastructure Pipeline spend in next 5 years



## Market landscape

- ✓ Market consists of battery powered vehicles like material handling carts, golf carts, etc.
- ✓ Market is expected to expand with new applications, e.g., Battery powered vehicles at all airports



## Product offering

- ✓ Wide range of products available for both BS and DIN standards



1. Motive power application
2. >80% OEM market share due to strong OEM connect
3. New use cases drive growth (Airport baggage handling, aerobridge etc)



## Market landscape

- ✓ Significant upgradation of railways expected over next few years
- ✓ ESS market exists in both conventional and newer segments of the railways industry

### High Speed Train



Conventional Train



## Product offering

- ✓ Product offering



1. Single Customer
2. Tender environment
3. New coach designs upcoming





## Market landscape

- ✓ Market currently declining
- ✓ Consolidation of Operators
- ✓ Lower tenancy ratio



BTS-Base  
Transceiver  
Station



## Product offering

- ✓ Product offering



1. Consolidation of operators
2. Demand decline
3. Overcapacity leading to price war (60% utilization currently in industry)
4. Focus on profitability over market share

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## IUPS

- ✓ Market to grow along with corresponding industries, mainly IT
- ✓ Automation in manufacturing sector will create growth
- ✓ Data center industry is growing at >20%



## Solar

- ✓ Government target of 40 GW of rooftop solar by 2022
- ✓ Price reduction of solar modules and Li-ion batteries expected
- ✓ Solar + storage expected to reach grid parity by 2024



## Power & projects

- ✓ Growth in industrial index will grow this market segment
- ✓ Increase in grid stabilization requirements due to increase in renewable power generation



## Telecom

- ✓ Market decline to continue. Demand mainly from replacement
- ✓ Next wave of growth to be led by 5G rollout
- ✓ New tower designs with limited space more suitable for lithium-ion technology



## Railway

- ✓ Growth expected as Indian Railways moves to new coach designs (LFB coaches)
- ✓ Replacement market intact till existing coaches completely phased out
- ✓ Fresh Govt spend in NIP expected



## Traction

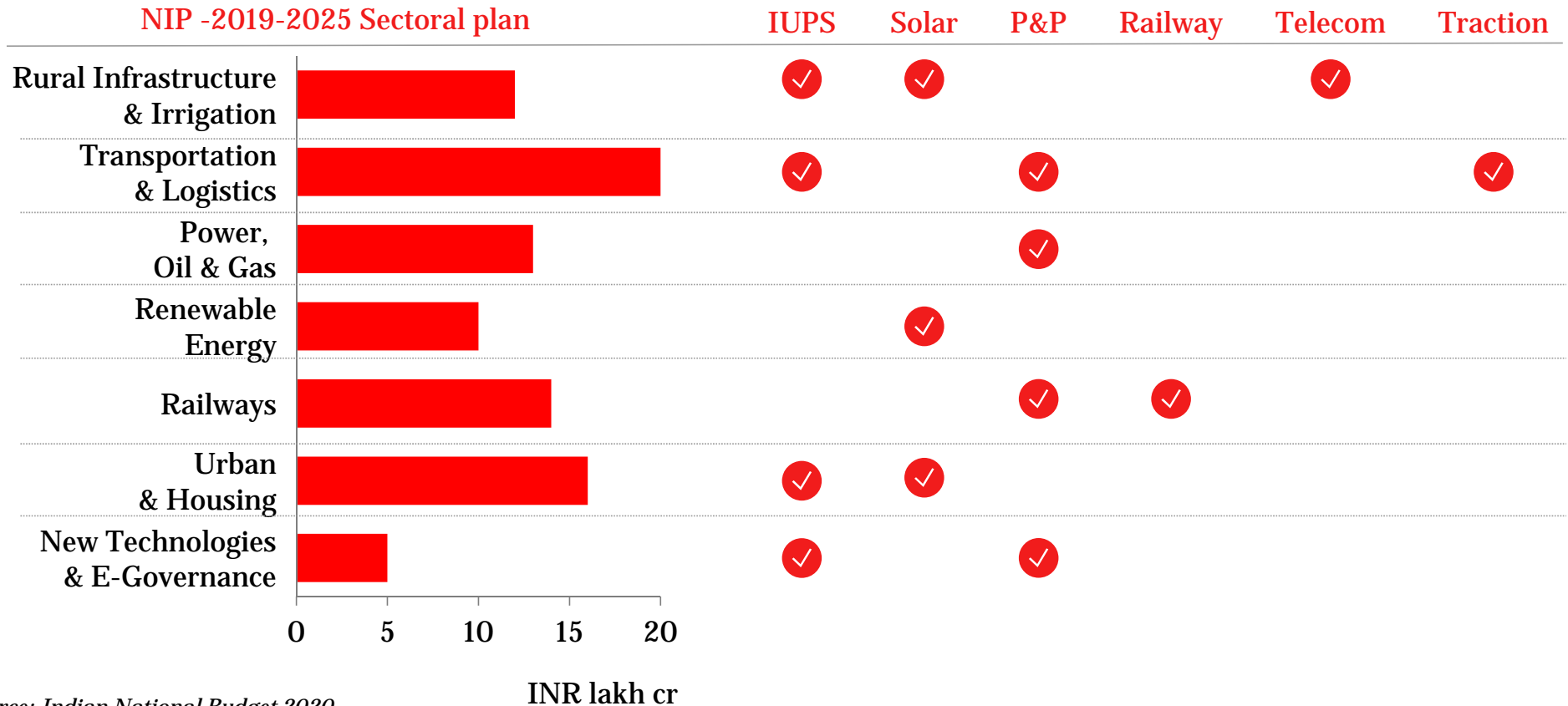
- ✓ Very dependent on industry growth scenario
- ✓ Impacted by auto slowdown
- ✓ New use cases expected in future – at airports, etc.



# National Infrastructure pipeline will drive future growth



## Exide Market Verticals



**~15%**  
of revenue  
in FY20e



**20%**  
of revenue  
in FY22



## Market Expansion:

- ✓ Plans to establish 12V VRLA in Middle East Asia & Africa
- ✓ Penetrate with OPzV/OPzS in Middle East Asia, Europe & Africa
- ✓ Traction: Enter new countries in Europe and South America and protect existing Market Share



## Expand existing product lines to exports in the following product segments:

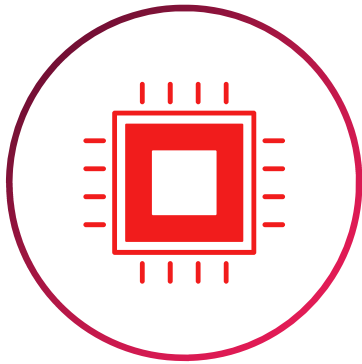
- ✓ Inverter
- ✓ UPS
- ✓ Telecom Towers
- ✓ Solar
- ✓ Power & projects



## Launch new products suited to global markets:

- ✓ Front Terminal range of Batteries
- ✓ Advanced Telecom VRLA
- ✓ OPzV Gel

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Ultra technology



Utility scale  
energy storage



Lithium-ion  
battery technology





Partnered with  
leading companies



Hybridization  
of technologies

Hybrid of capacitors and  
batteries

- Capacitors can operate at high rates but the amount of energy stored is limited
- Batteries store far more energy but are limited when it comes to power density



Key Benefits

Fast charge

- Exceptional charge acceptance capability

High Efficiency

- Returns more of the energy we store

## Segments of Utility Scale ESS



Renewables co-location  
(wind & solar)



Grid support  
(distribution investment deferral)



Conventional co-location



Mini-micro grids

## Applications within utility scale ESS

- Energy shifting
- Peak shaving
- PV smoothing
- Voltage regulation
- Frequency regulation
- UPS
- Mini-micro grids

# Exide has started piloting multiple utility scale ESS projects



Ongoing



Planned

**Hosur ESS Project  
(Lead Acid)**



**Lead Acid Tubular  
Gel**



PV Smoothing

**Hosur ESS Project  
(Lithium Ion)**



**Lithium Ion (LFP)**



Energy Shifting, PV  
Smoothing

**Tata Power DDL  
Project**

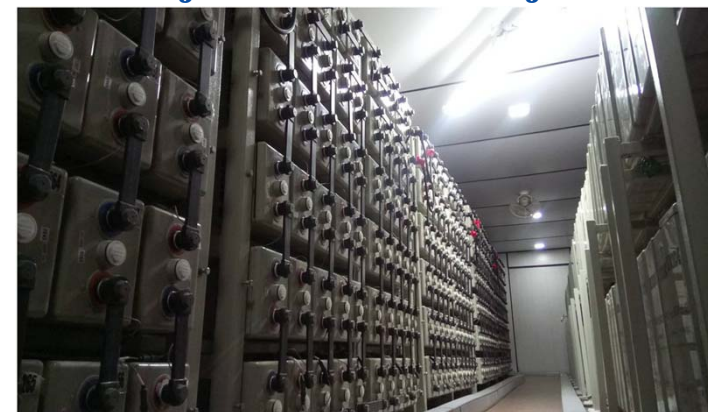


**Lithium Ion (NMC)**



Peak Shaving, Energy Shifting,  
Frequency Regulation, Voltage  
Regulation

**Exide-CESC ESS  
Project**



**Lead Acid Tubular  
Gel**



Peak Shaving, Voltage  
Regulation

**JU ESS  
Project**

**Advanced Ultra  
VRLA**

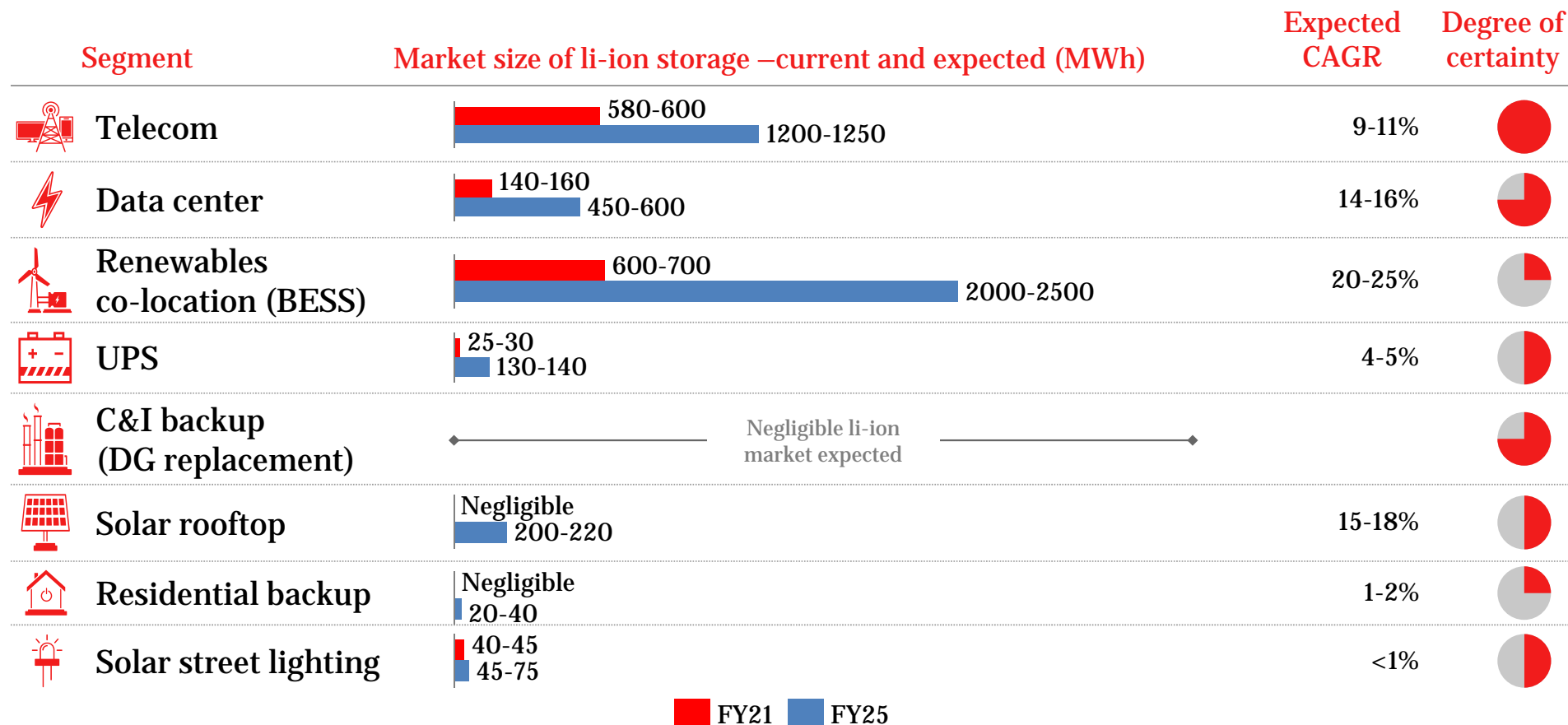


Micro-grid, UPS




Battery  
technology

Application

# Li-ion market in nascent stage, telecom is the only established application



Source: BCG analysis

<b>Segment</b>	<b>Strategy</b>
 <b>Telecom</b>	<ul style="list-style-type: none"><li>• Building a li-ion battery solution</li><li>• Advanced discussions with major telecom players for partnerships</li></ul>
 <b>Data center</b>	<ul style="list-style-type: none"><li>• Working with major data center players to build a solution</li></ul>
 <b>UPS</b>	<ul style="list-style-type: none"><li>• In discussions with UPS players for partnerships</li></ul>
<b>Others</b>	<ul style="list-style-type: none"><li>• Solutions to be developed based on individual customer requirement</li></ul>

